Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-50 (canceled)

51. (New) A data storage system, comprising: a set of storage devices, each storage device being configured to store and retrieve data in response to data access commands from a set of external host computers;

first-tier RAID control circuitry coupled to the set of storage devices, the first-tier RAID control circuitry being configured to apply a first RAID scheme on the set of storage devices in a manner that treats the set of storage devices as a first array under application of the first RAID scheme; and

second-tier RAID control circuitry coupled to the first array of storage devices, the second-tier RAID control circuitry being configured to apply a second RAID scheme on a set of storage sub-devices of a storage device of the set of storage devices in a manner that treats the set of storage sub-devices of that storage device as a second array under application of the second RAID scheme;

wherein each storage device of the set of storage devices has at least one non-volatile memory device, the at least one non-volatile memory device being selected from the group consisting of flash memory; compact flash memory; magnoresistive RAM; ferroelectric RAM; dynamic RAM and static RAM being maintained as non-volatile with the use of a power subsystem and microelectromechanical memory devices;

wherein the storage device having the set of storage sub-devices includes, as the storage sub-devices, non-volatile memory devices being selected from the group consisting of flash memory; compact flash memory; magnoresistive RAM; ferroelectric RAM; dynamic RAM and static RAM being maintained as non-volatile with the use of a power subsystem and microelectromechanical memory devices;

wherein the first-tier RAID control circuitry is adapted to treat each storage device of the set of storage devices as exactly one RAID device when applying the first RAID scheme to store particular data in the set of storage devices; and

wherein the second-tier RAID control circuitry is adapted to treat each storage sub-device of the set of storage sub-devices as exactly one RAID device when applying the second RAID scheme to store a portion of the particular data in the set of storage sub-devices in order to store the particular data in a RAID-within-RAID manner.

52. (New) The data storage system of claim 51, further comprising a device interface to receive I/O requests, wherein the device interface comprises an interface configured to conform to a protocol.

53. (New) The data storage system of claim 52, wherein the protocol comprises at least one of the following: SCSI (Small Computer System Interface), Fibre Channel, and INFINIBAND.

54. (New) The data storage system of claim 51, further comprising a housing.

55. (New) The data storage system of claim 54, wherein the housing has one of the following form factors: standard, half-height, and low-profile.

56. (New) The data storage system of claim 51, wherein RAID data comprises at least one of: a stripe, an error detection code, and an error correction code.

57. (New) The data storage system of claim 51, wherein the data storage device is configured to perform cache operations, the data storage device further comprising a cache manager.

58. (New) The data storage system of claim 57, wherein the cache manager comprises a manager configured to perform at least one of the following: translate an address of a different storage device to a cache address; cache data included in a write request; load data from the different storage device; and remove cache data.

59. (New) The data storage system of claim 51, further comprising a controller card that includes a controller and connections available to couple with more than one storage card that provides access to a least two of the storage devices.

60. (New) The data storage device of claim 59, wherein the storage card comprises a card having at least one parallel interface to a collection of the storage devices.

61. (New) The data storage system of claim 59, wherein the connection between the controller and the storage card comprises a serial connection.

62. (New) The data storage system of claim 59, wherein the controller comprises a bank interface that routes data requests to an associated bank of storage devices.

63. (New) The data storage system of claim 51 wherein the first-tier RAID control circuitry and the second-tier RAID control circuitry define a RAID hierarchy.

64. (New) The data storage system of claim 51, wherein the second-tier RAID control circuitry is electrically coupled subsequent to, and in series with, the first-tier RAID control circuitry, the second-tier RAID control circuitry being further configured to apply the second RAID scheme on the set of storage sub-devices of the storage device of the set of storage devices to store the portion of the particular data in the set of storage sub-devices (i) after application of the first RAID scheme on the set of storage devices by the first-tier RAID control circuitry and (ii) after receiving the portion of the particular data from the first-tier RAID control circuitry.